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(54) VIDEO ON DEMAND SYSTEM

(57)Abstract:

PURPOSE: To provide a video on demand system capable of viewing the continuance of the same program in a different optional time band when the viewing of the program is stopped in the middle.

CONSTITUTION: The IC card 8 can be mounted to the demand controller 6 of a video terminal, a program code is received from a video server 1 and recorded in the IC card 8 to which a user ID is registered beforehand when a user issues a distribution request and further, the demand controller 6 records the data of the elapsed time of the program distributed when the reception of video data is stopped in the IC card 8. When the user issues the distribution request of the same program after the reception of the video data is stopped, the demand controller 6 reads the program code and the data of the elapsed time recorded in the IC card 8 and transmits them to the video

server 1. The video server 1 distributes the video data of the program from a reception stopped position based on the program code and the data of the elapsed time transmitted from the demand controller 6.

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CLAIMS

[Claim(s)]
[Claim 1] In the video on-demand system which distributes the image data of the program for which said user wishes to said image terminal from the video server which answered the distribution demand from the user who uses an image terminal, and stored the image data of two or more programs A record means to record the data of the elapsed time of a program distributed from said video server on the IC card with which said image terminal is loaded, A transmitting means to read the data of the elapsed time currently recorded on said IC card, and to transmit to said video server is provided. Said video server When the distribution demand of the image data of the

program same after said image terminal stops reception of image data is received from said user, The video on-demand system characterized by distributing the image data of this program from a blind location based on the data of said elapsed time transmitted by said transmitting means.

[Claim 2] In the video on-demand system which distributes the image data of the program for which said user wishes to said image terminal from the video server which answered the distribution demand from the user who uses an image terminal, and stored the image data of two or more programs To the IC card recorded beforehand, the user ID which shows said user's identification information with which said image terminal was loaded A record means to record the data of the elapsed time of the program code which shows the program to which image data were distributed from said video server, and this program, A transmitting means to read the data of the user ID currently recorded on said IC card, a program code, and elapsed time, and to transmit to said video server is provided. Said video server When the data of the user ID transmitted by said transmitting means after said image terminal stops reception of image data, a program code, and elapsed time are received, The video on-demand system characterized by distributing the image data of this program from a blind location based on the data of this program code and elapsed time.

[Claim 3] Said record means is a video on-demand system according to claim 1 characterized by what the program code transmitted from said video server to the distribution demand from said user about said program code is recorded on said IC card, and is recorded on this IC card when said image terminal stops reception of image data about the data of said elapsed time.

[Claim 4] Said transmitting means is a video on-demand system according to claim 1 characterized by reading the data of the user ID currently recorded on this IC card, a program code, and elapsed time, and transmitting to said video server when this image terminal is loaded with said IC card after said image terminal stopped reception of image data.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the video on-demand system which managed the elapsed time of the program which starts a video on-demand system,

especially is distributed from a video server with the IC card.

[0002]

[Description of the Prior Art] Video on demand is considered as a system to which it can view and listen when a user wishes for programs, such as a movie and a concert, at ordinary homes. Video on demand is a system which accesses the database called the video server which stored the data of many programs prepared in the center from the image terminal with which ordinary homes etc. were equipped, and distributes the program for which a user wishes from a video server as indicated by 82nd page - the 83rd page of for example, the "Nikkei communication" April 4, 1994 issue. If the user who owns an image terminal performs a distribution demand of a desired program to a video server as a concrete procedure, the image data of the program will be distributed to an image terminal from a video server.

[0003]

[Problem(s) to be Solved by the Invention] In the conventional video on-demand system, when a user wants to interrupt viewing and listening for business etc., distribution of a program can be stopped by the distribution deactivate request. However, when the user once advanced the distribution deactivate request and stopped the image in the middle of the program, it was impossible to have performed control of seeing a continuation of the program in another time zone. That is, even when a user wanted to interrupt viewing and listening of a program and to see a continuation later, the user would have the program distributed from the beginning, the contents same to the location interrupted first will be seen again, and it was a problem from a viewpoint of saving of time amount and a communication link tariff.

[0004] This invention aims at offering the video on-demand system which enabled it to view and listen to a continuation of the same program in the time zone of another arbitration, when the user of an image terminal stops viewing and listening of a program on the way.

[0005]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, this invention manages the elapsed time of the program distributed by video on demand using the memory storage function of an IC card, and a user enables it to view and listen to a continuation of the interrupted program based on the data of the elapsed time.

[0006] Namely, this invention answers a distribution demand from the user who uses an image terminal. In the video on-demand system which distributes the image data of the program for which a user wishes to an image terminal from the video server which stored the image data of two or more programs A record means to record the data of the elapsed time of a program distributed to the IC card with which the image terminal was loaded from the video server, and a transmitting means to read the data of the elapsed time currently recorded on the IC card, and to transmit to a video server are

provided. And when the distribution demand of the image data of the same program is received from a user after the image terminal stopped reception of image data, a video server is constituted so that the image data of this program may be distributed from a blind location based on the data of the elapsed time transmitted by the transmitting means.

[0007] Moreover, a transmitting means reads a record means to record the data of the elapsed time of the program code which shows the program to which image data were distributed from the video server at the IC card with which the user ID which shows a user's identification information with which the image terminal was loaded according to the more concrete mode is recorded beforehand, and this program, and the data of the user ID currently recorded by the IC card, a program code, and elapsed time, and transmit to a video server is provided. And when the data of the user ID transmitted by the transmitting means, a program code, and elapsed time are received after the image terminal stopped reception of image data, a video server is constituted so that the image data of this program may be distributed from a blind location based on the data of this program code and elapsed time.

[0008] In this case, a record means is recorded on this IC card, when the program code transmitted from the video server to the distribution demand from a user about the program code is recorded on an IC card and an image terminal stops reception of image data about the data of elapsed time.

[0009] On the other hand, when an image terminal is loaded with an IC card after the image terminal stopped reception of image data, a transmitting means reads the data of the user ID currently recorded on this IC card, a program code, and elapsed time, and transmits them to a video server.

[0010]

[Function] Thus, in the video on-demand system of this invention, when [for which the user interrupted viewing and listening of a program for convenience' sake / certain] an image terminal stops reception of image data to hurt, the data of the elapsed time to the blind location are recorded on the IC card with which the image terminal was loaded. And if an image terminal is loaded with an IC card when a user views and listens to the program which interrupted viewing and listening in another time zone, the data of the elapsed time currently recorded on this IC card will be read, and it will be transmitted to a video server.

[0011] In a video server, reception of the data of elapsed time distributes the image data of the same program as the program distributed first from the time amount location shown by the data of this elapsed time. Thereby, the user of an image terminal can view and listen from the location which interrupted the program to which it viewed and listened first.

[0012] Moreover, if user ID and a program code are further recorded on the IC card, such control will become possible more easily. That is, when an image terminal is

loaded with an IC card after the image terminal stopped reception of image data in this case, the data of the user ID currently recorded on this IC card, a program code, and elapsed time are read, and it is transmitted to a video server. Therefore, a video server can recognize the user who stopped reception of image data in the image terminal by user ID, and can distribute the image data of this program from a blind location to a user's image terminal shown by this user ID based on the data of a program code and elapsed time.

[0013]

[Example] Hereafter, the example of this invention is explained with reference to a drawing. Drawing 1 is the block diagram showing the outline configuration of the video on-demand system concerning one example of this invention. In this drawing, a video server 1 is arranged in the center of a video on-demand system, and stores the data of many programs, such as a movie, in the mass storage medium represented by the optical disk (videodisk). This video server 1 is connected to the subscriber terminal equipment 3 through direct and ISDN circuit 2. The subscriber terminal equipment 3 is connected to the end side of an optical fiber 4.

[0014] On the other hand, the subscriber side of a video on-demand system is equipped with demand control equipment 6 and a television monitor 7 as an image terminal. Demand control equipment 6 sends out a distribution demand of the program which the user mainly specified to a video server 1, has the function to which the image data of a program distributed from the video server 1 are supplied and displayed on a television monitor 7, and is connected to the other end side of an optical fiber 4 through the network termination 5. Moreover, demand control equipment 6 can be loaded with IC card 8.

[0015] Drawing 2 is drawing showing the internal configuration of demand control equipment 6 and IC card 8. As shown in this drawing, demand control equipment 6 has the ISDN interface section 11, a control section 12, read / write-in equipment 13, and a contact surface 14. The ISDN interface section 11 intervenes between a network control unit 5, a control section 12, and read / write-in equipment 13, and manages an interface in case transfer of the information between a video server 1 and an image terminal is performed through ISDN circuit 2. It connects with a network termination 5, a television monitor 7, the ISDN interface section 11, and read / write-in equipment 13, and a control section 12 performs various kinds of demand controls mentioned later. Read / write-in equipment 13 writes in the data to the read and IC card 8 of data which were recorded on IC card 8. A contact surface 14 is electrically connected with the contact surface which IC card 8 mentions later, in order to enable signal transfer between both, when demand control equipment 6 is loaded with IC card 8.

[0016] On the other hand, IC card 8 has ROM23 and the contact surface 24 which stored the program as procedure of the storage section 21 which consists of an IC memory, the central-process section (CPU) 22, and the central-process section 22.

The storage section 21 memorizes the data of the elapsed time from the user ID which shows a user's identification information which was assigned to the user who uses an image terminal and was registered beforehand, the program code of the program to which it views and listens, and the program beginning of the program under viewing and listening. The central-process section 22 performs processing accompanying demand control mentioned later based on the program stored in ROM23. A contact surface 24 is electrically connected with the contact surface 14 of demand control equipment 6, in order to enable transfer of the signal between demand control equipment 6 and IC card 8, when demand control equipment 6 is loaded with IC card 8.

[0017] Hereafter, it explains with reference to the flow chart which shows actuation of the video on-demand system of this example to drawing 3 and drawing 4 . In addition, in the following explanation, on the occasion of the communication link of the information from the video server 1 to the demand control equipment 6 by the side of an image terminal, the information outputted from the video server 1 is sent out to the subscriber terminal equipment 3 through direct or an ISDN circuit, and is further sent out to demand control equipment 6 via an optical fiber 4 and a network termination 5 from the subscriber terminal equipment 3. With demand control equipment 6, the information sent from the video server 1 is incorporated from a network termination 5 through the direct or ISDN interface section 11 to a control section 12.

[0018] On the other hand, on the occasion of the communication link of the information from demand control equipment 6 to a video server 1, required information is sent out to a network termination 5 through the direct or ISDN interface section 11 from a control section 12, and it is further sent out to a video server 1 via an optical fiber 4 and the subscriber terminal equipment 3 from a network termination 5. In a video server 1, the information sent from demand control equipment 6 is incorporated through direct or ISDN circuit 2 from the subscriber terminal equipment 3.

[0019] First, the actuation at the time of initial reception actuation of a program, i.e., an image terminal, receiving a desired program first with reference to drawing 3 is described. In this case, the user of an image terminal loads demand control equipment 6 with IC card 8 first (S10). The user ID memorized by the storage section 21 is sent out to a video server 1 by loading of this IC card 8 (S11). That is, if demand control equipment 6 is loaded with IC card 8, user ID will be read from the storage section 21 by the central-process section 22. The read user ID is read by read / write-in equipment 13 through a contact surface 24 and a contact surface 14, and is sent out to a video server 1 from a control section 12. [0020] A video server 1 receives the user ID sent out from the image terminal side, and if the user ID checks with what was already registered, it sends out authentication confirmed information to the demand control equipment 6 by the side of an image terminal. If this authentication confirmed information is received by demand control equipment 6 (S12), demand control

equipment 6 will be in the condition that selection of the program by the user is receivable. Here, if the user who uses an image terminal chooses a desired program out of a program list (S13), the program selection information which shows the selected program will be sent out to a video server 1 from a control section 12. Thus, by transmitting user ID and program selection information to a video server 1 from demand control equipment 6, the distribution demand of a program to a video server 1 is made from a user.

[0021] A video server 1 sends out the program code of the program specified by the program selection information to demand control equipment 6, if program selection information is received. With demand control equipment 6, reception of the program code sent from the video server 1 records the program code on the storage section 21 of IC card 8 with read / write-in equipment 13 (S15). (S14) Then, the image data of the program corresponding to that program code, i.e., the program chosen by S13, are sent out to demand control equipment 6 from a video server 1, and are displayed by the television monitor 7 (S16).

[0022] If a user performs actuation to that effect to stop viewing and listening of the program which the user who uses an image terminal is receiving here on the way Stop instruction is transmitted to a video server 1 the middle from demand control equipment 6 (S17). The data of the elapsed time of the program, i.e., the data in which the time amount to the time amount location stopped from the beginning of a program is shown, are recorded on coincidence by the storage section 21 of IC card 8 with read / write-in equipment 13 (S18). Then, when the user of an image terminal samples IC card 8 from demand control equipment 6, a series of processings are ended (S19).

[0023] Next, after the reception actuation from the middle of a program, i.e., an image terminal, stops reception of a program on the way with reference to drawing 4 , the actuation in the case of starting reception again from the stopped time amount location is described.

[0024] In drawing 4 , actuation of S20-S22 is the same as actuation of drawing 3 of S10-S12. That is, if the user of an image terminal loads demand control equipment 6 with IC card 8 (S20), the user ID memorized by the storage section 21 is sent out to a video server 1 (S21), further, a video server 1 will receive the user ID sent out from the image terminal side, and will send out authentication confirmed information to the demand control equipment 6 by the side of an image terminal, and this authentication confirmed information will be received by demand control equipment 6 (S22).

[0025] If authentication confirmed information is received by S22, demand control equipment 6 reads the data of the program code currently recorded on the storage section 21 of IC card 8, and elapsed time with read / write-in equipment 13, and sends them out to a video server 1 (S23). Thus, it means that the distribution demand of a program to a video server 1 was made from the user by transmitting user ID and a program code to a video server 1 from demand control equipment 6. If the data of a

program code and elapsed time sent from demand control equipment 6 are received, a video server 1 will be sending out from the time amount location in which the image data of the program specified in program code are directed by the data of elapsed time, and will start distribution of the program (S24).

[0026] Here, after the program under distribution is completed (S25), demand control equipment 6 resets the data of the program code currently recorded on the storage section 21 of IC card 8, and elapsed time with read / write-in equipment 13 (S26), and equips reception of the following program with them. Then, the user of an image terminal samples IC card 8 from demand control equipment 6, and a series of processings are ended (S27).

[0027]

[Effect of the Invention] As explained above, when viewing and listening of a program to which the user of an image terminal is distributed is stopped on the way according to this invention, I can have the time zone of another arbitration which a user wishes distribute a continuation of the same program from a video server. Therefore, as compared with the approach of receiving distribution of the image data of a program which interrupted viewing and listening from the beginning, a user can aim at saving of viewing-and-listening time amount and a communication link tariff, and practical effectiveness is very large.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The block diagram showing the outline configuration of the video on-demand system concerning one example of this invention

[Drawing 2] The block diagram showing the internal configuration of the demand control equipment in drawing 1 , and an IC card

[Drawing 3] The flow chart for explaining initial reception actuation of the program in this example

[Drawing 4] The flow chart for explaining the reception actuation from the middle of the program in this example

[Description of Notations]

1 -- Video server 2 -- ISDN circuit

3 -- Subscriber terminal equipment 4 -- Optical fiber

5 -- Network termination 6 -- Demand control equipment

7 -- Television monitor 8 -- IC card

11 -- ISDN interface section 12 -- Control section

13 -- Read / write-in equipment 14 -- Contact surface

21 -- Storage section 22 -- Central-process section

23 -- ROM 24 -- Contact surface